

Appl. No. 10,628,110

Admt. dates Jul. 28, 2003

Reply to Office action of Mar. 7, 2005

Claims without markings:

## CLAIMS

What is claimed is:

1. A method for the rapid analysis of live cells, by detecting long and thin micro-colonies produced from cells trapped in small, long, thin, micro-channels that are open from both sides and attached to a filtration material, which method comprises:
  - filtrating of investigated sample through a device consisting from a micro-array of long and thin micro-channels collected in a micro-channel plate, with a filter attached to one side of the micro-channel plate for trapping cells presented in a sample in the micro-channels on the surface of the filter, where some micro-channels can obtain cells and some not,
  - attaching solid or liquid nutrient media to the side of filter opposite of micro-channel plate,
  - growing of micro-colonies in micro-channels from trapped cells,
  - replacing the micro-plate with a filter and micro-colonies on another surface are filled by absorbent or fluorescent dyes in order to colorize the micro-colonies and increase their light absorbance or make them fluorescent,
  - replace the micro-plate with a filter and place colored or fluorescent micro-colonies under a light or fluorescent microscope and detect and enumerate colored

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or fluorescent micro-colonies which number correlate to live cells in initial sample.

2. The method according to Claim 1, wherein micro-colonies don't need additional coloration and are detected by a natural increase of light absorbance, light scattering (turbidity), or natural fluorescence in comparison with empty micro-channels that don't possess named optical characteristics.
3. The method according Claim 1, wherein micro-colonies are detected using coloration by dyes that change the color or fluorescence of micro-colonies after reaction with cells structures or biomolecules.
4. The method according Claim 1, wherein micro-colonies are detected by coloration of their body or surrounding extracellular space by chromogenic or fluorogenic substrates that reveal a color or fluorescence after cleaving by specific indicator enzymes or enzymes attached to antibodies.